

# Beta Instrument Corporation

377 ELLIOT STREET, NEWTON UPPER FALLS, MASSACHUSETTS / 02164 / AREA CODE 617 / TELEPHONE 969-6510



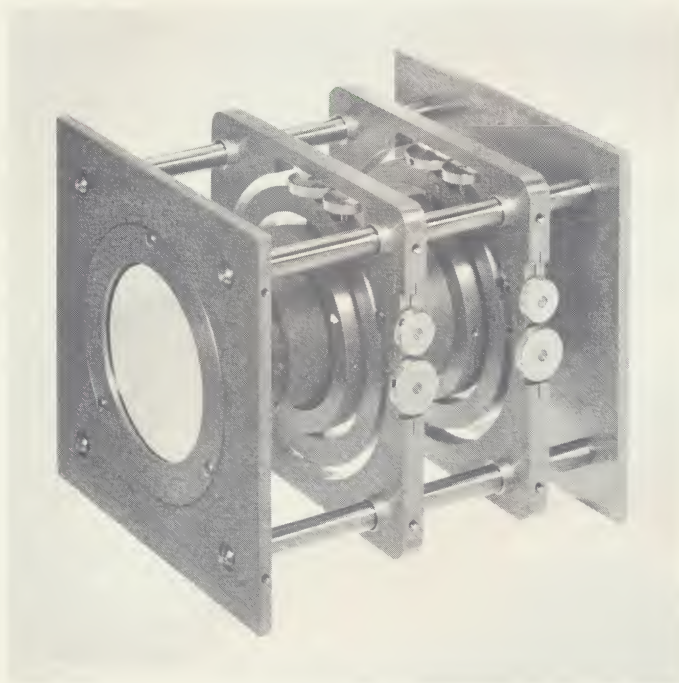




## Engineering Data

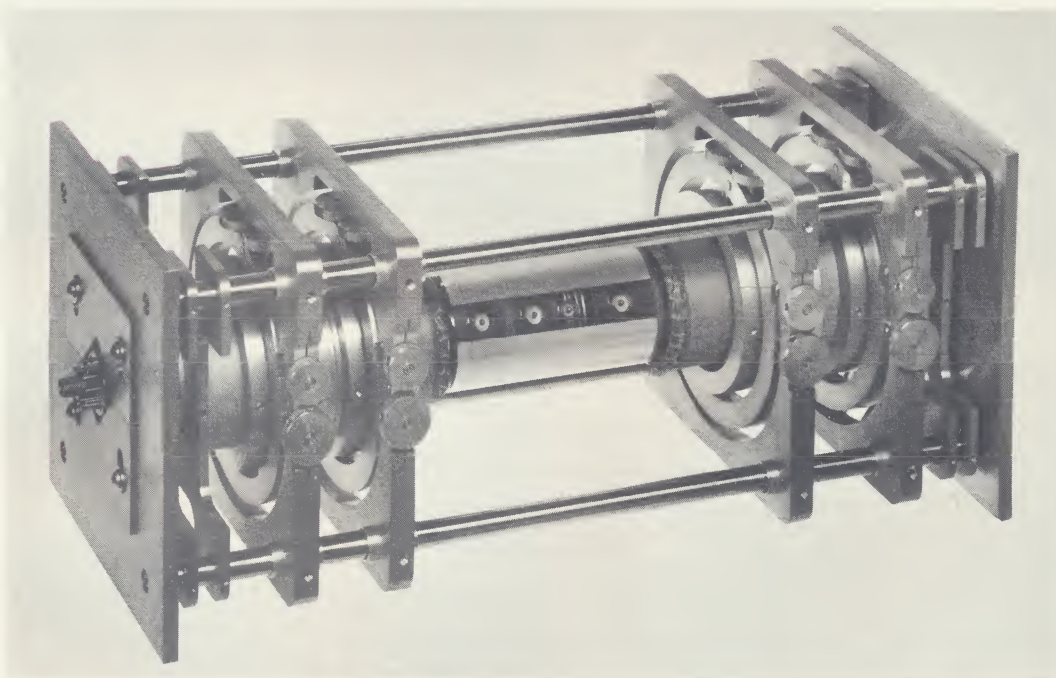
### PRECISION TUBE AND COIL MOUNTS

to meet exacting performance requirements

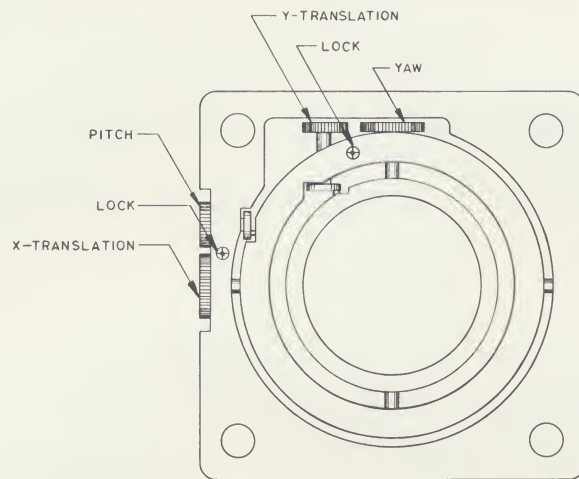


Flexible combinations of standard assemblies for the precision mounting and alignment of:

- cathode ray tubes
- direct view storage tubes
- single-gun recording storage tubes
- dual-gun recording storage tubes



# Beta Instrument Corporation



MICROPOSITIONER ADJUSTMENTS

DURING ALIGNMENT PROCEDURE, HAVE  
LOCKS ADJUSTED TO PROVIDE MEDIUM  
TENSION ON CONTROLS.

#### DESCRIPTION:

The precision tube and coil mounts illustrated and described here represent the latest and most successful combination of Beta's knowledge of electron optics together with engineering skills in the effort to achieve ultimate performance with cathode ray tube devices.

The resulting assemblies achieved four principal goals in which the design emphasis was placed. These were:

1. Provide a mount consisting of standardized assemblies that can accommodate cathode ray tubes, direct view storage tubes, single gun recording storage tubes and dual gun recording storage tubes and can be easily adapted to any combination of fixed and movable yokes and coils.
2. Provide a micropositioner assembly allowing six independent degrees of freedom, the adjustments of which can be locked without the slightest movement of final position.
3. Provide a mount in which the tube can be easily removed from the front without disassembly of the frame or movement of the coil mounts.
4. Provide the simplest possible design to achieve the lowest possible cost without compromising performance.

#### STANDARD ASSEMBLIES:

<u>Code</u>	<u>Description</u>
CRTM	Basic CRT, direct view, or single gun recording storage tube mount consisting of bezel plate, bezel ring, 4 rods, rear plate, rear tube clamp. Specify tube diameter (up to 7 inches) and length.
DSTM	Basic dual gun recording storage tube mount consisting of 2 end plates, 2 tube clamps, 4 rods, center support.
MCM	Micropositioner. Specify coil or yoke diameter.
FYM	Fixed yoke mount. Specify yoke diameter.
CCM	Centering and alignment coil mount. Specify coil diameter.

#### EXAMPLES:

Top photograph	CRTM/2MCM Basic CRT mount with 2 micropositioners.
Bottom photograph	DSTM/4MCM/4CCM Basic dual gun recording storage tube mount with 4 micropositioners, 2 centering coil holders and 2 alignment coil holders.

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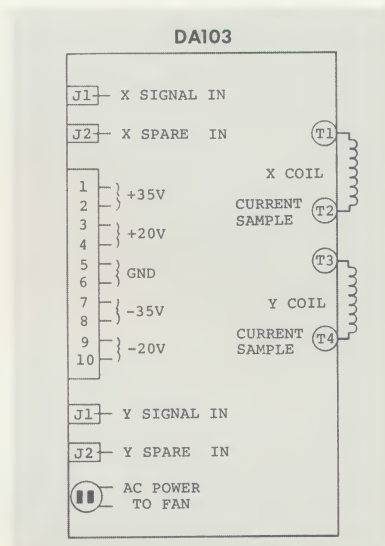




## Engineering Data

### DEFLECTION AMPLIFIER

Model DA103



#### DESCRIPTION:

The Model DA103 Deflection Amplifier is an ALL SILICON solid-state modular package featuring high deflection performance characteristics at low cost. It is designed for application in any cathode ray tube or storage tube display system employing magnetic deflection.

The Model DA103 Deflection Amplifier is capable of supplying up to 3 amperes of deflection current to a directly-coupled deflection coil. The module comprises two identical channels of power amplification - one for X deflection and one for Y deflection.

The Amplifier is a DC coupled operational-type difference amplifier. It features excellent linearity, wide bandwidth and stable operation. Since the amplifier is DC coupled throughout, it may be utilized in random point plotting or alpha-numeric deflection applications as well as for raster or other periodic scan formats. Centering, off-set, geometry correcting and other inputs may be introduced with ease at the summing point of the difference amplifier stage.

The input of the Model DA103 Deflection Amplifier is designed to be compatibly coupled to the output of the Model SG415 Sawtooth Generator. The Amplifier is also fully compatible with all other modular display system components manufactured by Beta.

# Beta Instrument Corporation

## SPECIFICATIONS:

### Inputs

AC Power (for fan)	115 volts 60 cps 0.5 amperes
DC Power	±20 volts @±4.0 amperes  ±35 volts @±50 ma
Signal	
Amplitude (Note 1)	±3.0 volts
Impedance	1 K ohms
Spare	1 K ohms

### Output

Deflection Coil Current	±1.5 amperes
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### Controls

Centering	
Quiescent Current (factory adjusted)	

### Settling Time

for full output swing of ±1.5 amperes with a 25 microhenry coil to 0.1% of final value.....10 microseconds

for settling to 1.0% use the following relationship:

$$T \text{ (usec)} = \frac{L \text{ (uh)} \times I \text{ (amps)}}{18 \text{ Volts} - IR \text{ (volts)}}$$

Where: L = Yoke inductance  
I = Current through yoke  
R = Yoke resistance

### Linearity

±0.5%

### Small Signal Response

Flat to within 3 db from DC to 500 KC with a 28 microhenry yoke

### Power Supply Regulation Requirements

For less than 0.01% change in coil current:

±20 volts	.5%
-35 volts	.5%
+35 volts	.025%

### Temperature Stability

50 ppm/°C

### Drift

For full output after 30 minutes warmup	.004%/hour
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### Operating Temperature

0 to 50°C

### Outline Dimensions

7 l x 7 1/4 w x 6 h inches

Note 1: Input signal amplitude may be 6 volts peak-to-peak either positive or negative with proper off-set DC bias voltage applied at a spare input. Input signal may be DC, sawtooth, random positioning, sine, square, pulse, resolved sweeps and/or complex waveforms.

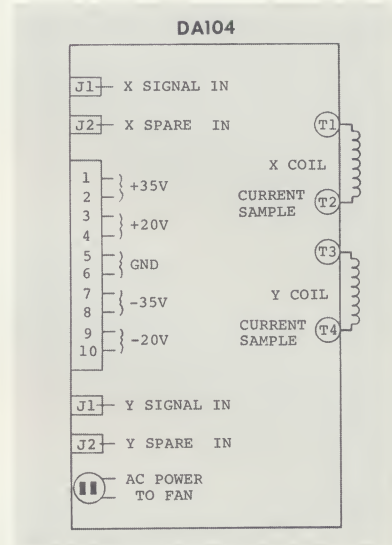
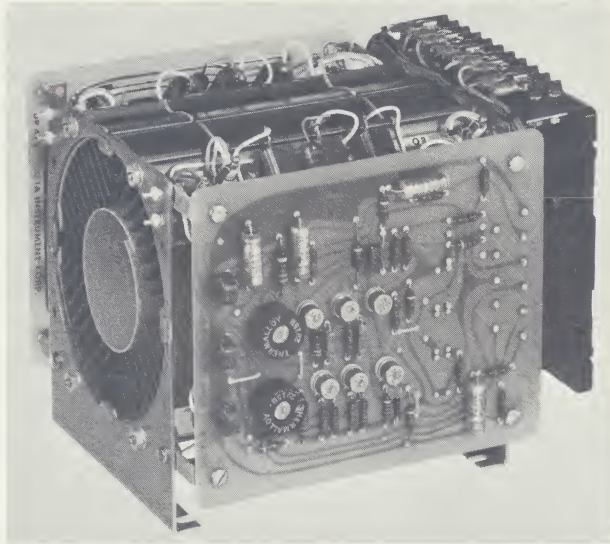
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Engineering Data  
DEFLECTION AMPLIFIER  
Model DA104



DESCRIPTION:

The Model DA104 Deflection Amplifier is an ALL SILICON solid-state modular package featuring high deflection performance characteristics at low cost. It is designed for application in any cathode ray tube or storage tube display system employing magnetic deflection.

The Model DA104 Deflection Amplifier is capable of supplying up to 6 amperes of deflection current to a directly-coupled deflection coil. The module comprises two identical channels of power amplification - one for X deflection and one for Y deflection.

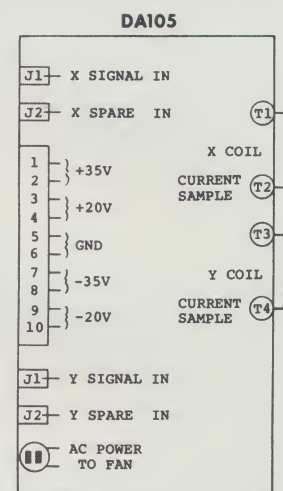
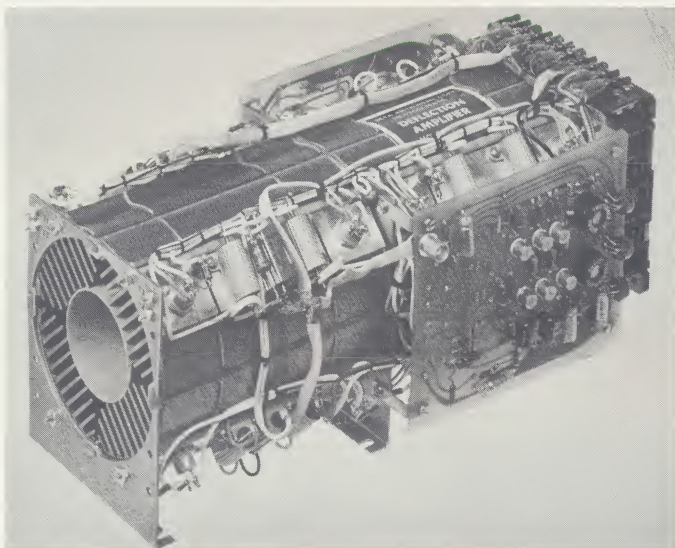
The Amplifier is a DC coupled operational-type difference amplifier. It features excellent linearity, wide bandwidth and stable operation. Since the amplifier is DC coupled throughout, it may be utilized in random point plotting or alpha-numeric deflection applications as well as for raster or other periodic scan formats. Centering, off-set, geometry correcting and other inputs may be introduced with ease at the summing point of the difference amplifier stage.

The input of the Model DA104 Deflection Amplifier is designed to be compatibly coupled to the output of the Model SG415 Sawtooth Generator. The Amplifier is also fully compatible with all other modular display system components manufactured by Beta.

**Beta Instrument Corporation**



Engineering Data  
DEFLECTION AMPLIFIER  
Model DA105



**DESCRIPTION:**

The Model DA105 Deflection Amplifier is an ALL SILICON solid-state modular package featuring high deflection performance characteristics at low cost. It is designed for application in any cathode ray tube or storage tube display system employing magnetic deflection.

The Model DA105 Deflection Amplifier is capable of supplying up to 12 amperes of deflection current to a directly-coupled deflection coil. The module comprises two identical channels of power amplification - one for X deflection and one for Y deflection.

The Amplifier is a DC coupled operational-type difference amplifier. It features excellent linearity, wide bandwidth and stable operation. Since the amplifier is DC coupled throughout, it may be utilized in random point plotting or alpha-numeric deflection applications as well as for raster or other periodic scan formats. Centering, off-set, geometry correcting and other inputs may be introduced with ease at the summing point of the difference amplifier stage.

The input of the Model DA105 Deflection Amplifier is designed to be compatibly coupled to the output of the Model SG415 Sawtooth Generator. The Amplifier is also fully compatible with all other modular display system components manufactured by Beta.

# Beta Instrument Corporation



## SPECIFICATIONS:

### Inputs

AC Power (for fan)	115 volts 60 cps 0.5 amperes
DC Power	±20 volts @±14.0 amperes  ±35 volts @±50 ma
Signal	
Amplitude (Note 1)	±3.0 volts
Impedance	1 K ohms
Spare	1 K ohms

### Output

Deflection Coil Current	±6.0 amperes
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### Controls

Centering  
Quiescent Current (factory adjusted)

### Settling Time

for full output swing of ±6 amperes with a 25 microhenry coil to 0.1% of final value.....30 microseconds

for settling to 1.0%, use the following relationship:

$$T \text{ (usec)} = \frac{L \text{ (uh)} \times I \text{ (amps)}}{18 \text{ Volts} - IR \text{ (volts)}}$$

Where: L = Yoke inductance  
I = Current through yoke  
R = Yoke resistance

### Linearity

±0.5%

### Drift

For full output after 30 minutes warmup	0.02%/hour
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### Small Signal Response

Flat to within 3 db from DC to 165 KC with a 60 microhenry yoke

Note 1: Input signal amplitude may be 6 volts peak-to-peak either positive or negative with proper off-set DC bias voltage applied at a spare input. Input signal may be DC, sawtooth, random positioning, sine, square, pulse, resolved sweeps and/or complex waveforms.

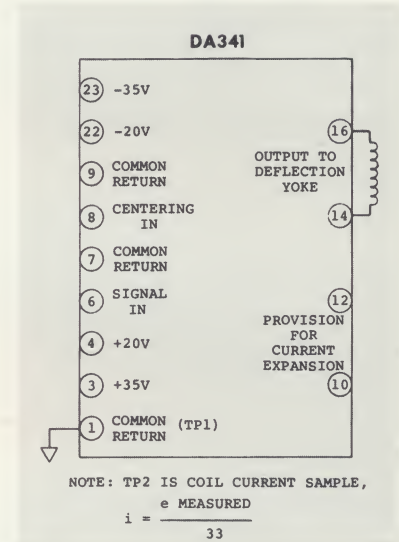
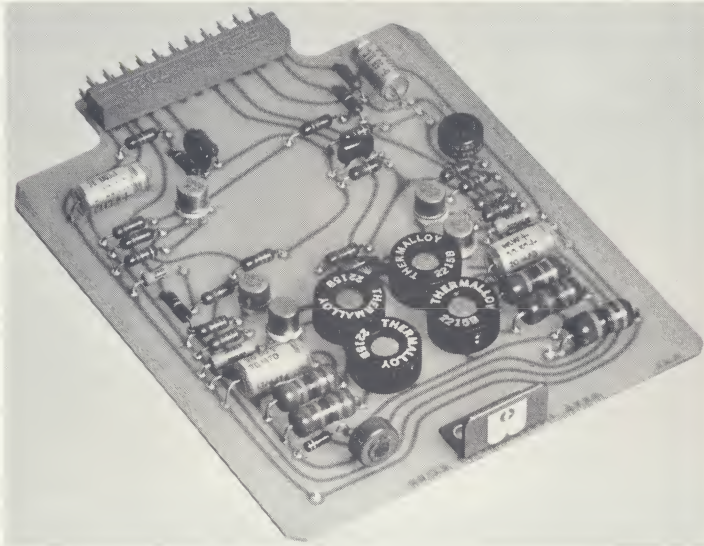
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Engineering Data  
DEFLECTION AMPLIFIER  
Model DA341



**DESCRIPTION:**

The Model DA341 Deflection Amplifier is an all silicon solid-state unit featuring plug-in convenience and low cost. It is designed for application in any cathode ray tube or storage tube display system employing magnetic deflection.

The Model DA341 is capable of supplying up to 400 ma of deflection current to a directly coupled deflection coil. The bandwidth of the module is DC to 4 mc.

The Amplifier is a DC coupled operational-type difference Amplifier. It features excellent linearity, wide bandwidth and stable operation. Since the Amplifier is DC coupled throughout, it may be utilized in random point plotting or alpha-numeric deflection applications as well as for raster or other periodic scan formats. Centering, off-set, geometry correcting and other inputs may be introduced with ease at the summing point of the difference amplifier stage.

Provisions are included for direct connection to an auxiliary output amplifier possessing greater deflection current capability if subsequently desired.

The input of the Model DA341 Deflection Amplifier is designed to be compatibly coupled to the output of the Model SG415 Sawtooth Generator. The Amplifier is also fully compatible with all other modular display system components manufactured by Beta.

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## SPECIFICATIONS:

### INPUTS

#### Signal

Amplitude (Note 1)  
Impedance

±5.0 volts  
5K, resistive

#### Spares

Amplitude  
Impedance

±5.0 volts DC  
5K, resistive

#### Power

±20 volts @±250ma  
±35 volts @± 25ma

### OUTPUT

Deflection Coil Current

±200 ma

### SETTLING TIME

(See Note 2)

### BANDWIDTH (Note 3)

DC to 4 mc

### DYNAMIC LINEARITY (Note 4)

±0.1%

### TEMPERATURE STABILITY

40 ppm/oc

### OPERATING TEMPERATURE

-25°C to +60°C

### ADJUSTMENTS

Centering

Screwdriver adjustable potentiometer  
available at rear of module.

### PHYSICAL

Connector  
Plug

Elco 00-7022-023-000-001

Receptacle

Elco 00-7008-023-163-001  
(supplied with unit)

Dimensions  
Minimum Spacing Between Connectors

6 3/4 l x 5 h  
.700 inches

Weight

6 ounces

#### Materials

Semiconductors  
Resistors  
Printed circuit card

silicon  
metal film  
G-10 glass epoxy

Note 1: Input signal amplitude may be 10 volts peak to peak either positive or negative with proper off-set DC bias voltage applied at a spare input or pot-adjusted at the rear of the module. Input signal may be DC, sawtooth, random positioning, sine, square, pulse, resolved sweeps and/or complex waveforms.

Note 2: 
$$T \text{ (usec)} = \frac{L \text{ (uh)} \times I \text{ (amps)}}{18 \text{ Volts} - IR \text{ (Volts)}}$$

Where: T = Settling time to within 1% of maximum current  
L = Yoke Inductance  
I = Current through Yoke  
R = Yoke Resistance

Note 3: Flat to within 3 db with zero microhenry load at 200 ma.

Note 4: For no less than 99% of sweep input up to rated current.

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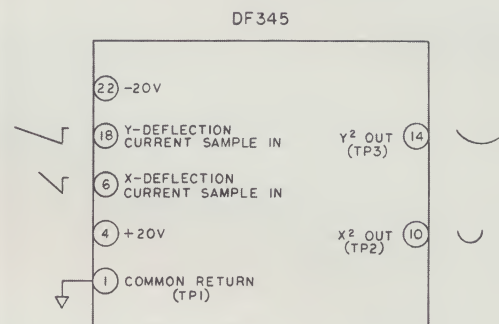
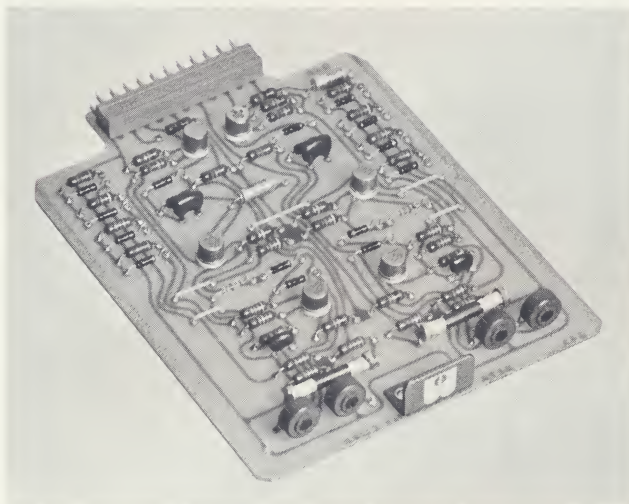




## Engineering Data

### DYNAMIC FOCUS GENERATOR

Model DF345



#### DESCRIPTION:

The Model DF345 Dynamic Focus Generator is an all silicon solid-state unit featuring plug-in convenience and low cost. It is designed for application in any cathode ray tube or storage tube display system where dynamic focus correction is required.

The Model DF345 Dynamic Focus Generator provides a parabolic voltage waveform to a Dynamic Focus Output Amplifier for the purpose of maintaining uniform focus over the entire active scan area of cathode ray and storage tubes. X and Y deflection current samples are generally utilized as inputs to the unit, assuring that the current in the dynamic focus coil is, in fact, a function of instantaneous spot position. These waveforms are squared and smoothed in two identical channels for correction of both X and Y axes. Since the Generator is DC coupled throughout, the dynamic focus correction is valid for random point-plotting deflection systems as well as for raster and other periodic scan formats. Temperature compensating techniques provide high stability despite temperature variations. Four screwdriver adjustable potentiometers (two for each channel) available at the rear of the module allow precise trimming of both ends of the parabolic waveforms for optimum results.

The outputs of the Model DF345 Dynamic Focus Generator are designed to be compatibly coupled to the input of any of the Dynamic Focus Output Amplifiers manufactured by Beta. The Amplifiers are chosen according to the total dynamic focus current required. In addition, the unit may be used to drive a voltage amplifier for electrostatic dynamic focus correction. The Generator is also fully compatible with all other modular display system components manufactured by Beta.

# Beta Instrument Corporation

## SPECIFICATIONS:

### INPUTS

#### X-DEFLECTION CURRENT SAMPLE

Amplitude	±5 volts maximum
Impedance	5K, resistive, minimum

#### Y-DEFLECTION CURRENT SAMPLE

Amplitude	±5 volts maximum
Impedance	5K, resistive, minimum

### POWER

+20 volts @50 ma
-20 volts @25 ma

### OUTPUTS

#### X-DYNAMIC FOCUS WAVEFORM

Amplitude	2 volts maximum
Impedance	800 ohms

#### Y-DYNAMIC FOCUS WAVEFORM

Amplitude	2 volts maximum
Impedance	800 ohms

### OPERATING TEMPERATURE

-25°C to +60°C

### ADJUSTMENTS

X POSITIVE SLOPE	Screwdriver adjustable potentiometers avail- able at rear of module
X NEGATIVE SLOPE	
Y POSITIVE SLOPE	
Y NEGATIVE SLOPE	

### PHYSICAL

#### CONNECTOR

Plug	Elco 00-7022-023-000-001
Receptacle	Elco 00-7008-023-063-001 (supplied with unit)

#### DIMENSIONS

6 3/4 L x 5 W

#### MINIMUM SPACING BETWEEN CONNECTORS

.700 inches

#### WEIGHT

6 ounces

#### MATERIALS

Semiconductors	silicon
Resistors	metal film
Printed circuit card	G-10 glass epoxy

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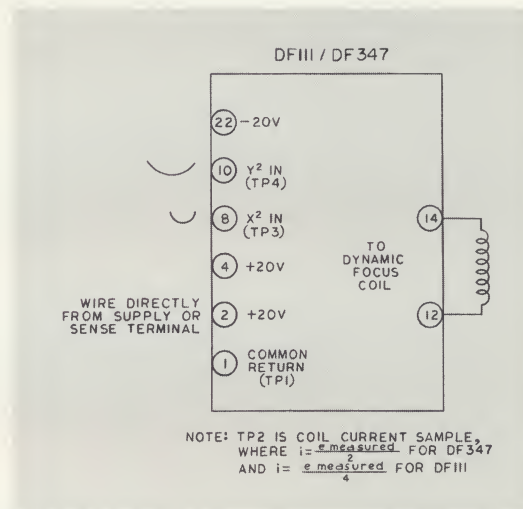
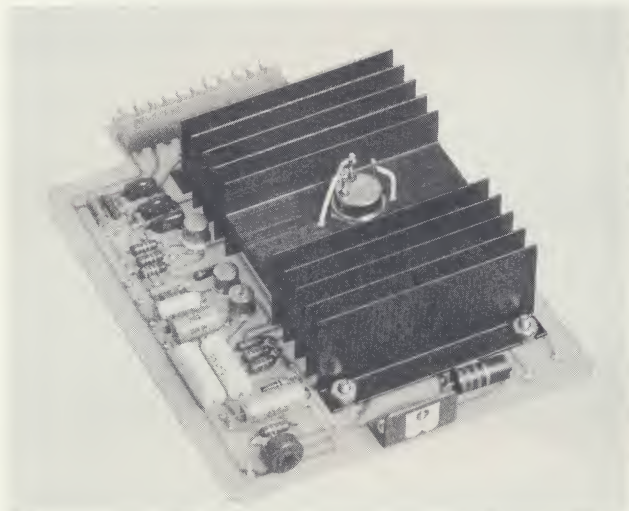




## Engineering Data

### DYNAMIC FOCUS AMPLIFIERS

Models DF111/DF347



#### DESCRIPTION:

The Models DF111 and DF347 Dynamic Focus Amplifiers are all silicon solid state units featuring plug-in convenience and low cost. They are designed for application in any cathode ray tube or storage tube display system where dynamic focus correction is required.

The Models DF111 and DF347 Dynamic Focus Amplifiers are DC coupled, operational type power amplifiers. These amplifiers provide current to a dynamic focus coil for the purpose of maintaining uniform focus over the entire active scan area of cathode ray and storage tubes. In terms of a linear scan, the required output current waveform, and therefore the input voltage waveform, is typically parabolic. Both amplifiers are designed to be compatibly coupled to the output of the Model DF345 Dynamic Focus Generator, which provides the shaped input voltage characteristic. Since the amplifiers are DC coupled throughout, the dynamic focus correction is valid for random point-plotting deflection systems as well as for raster and other period scan formats.

The Model DF347 has ten times the output current capability of the Model DF111. High current correction waveforms are required in high frequency scan applications where low inductance dynamic focus windings must be used. For low frequency applications where high inductance coils are suitable, the Model DF111 will supply the required current.

The Models DF111 and DF347 Dynamic Focus Amplifiers are fully compatible with all other modular display system components manufactured by Beta.

# Beta Instrument Corporation

## SPECIFICATIONS:

### INPUTS

#### X-CORRECTION WAVEFORM

Voltage  
Impedance

0 - 2 volts positive  
5 K resistive

#### Y-CORRECTION WAVEFORM

Voltage  
Impedance

0 - 2 volts positive  
5 K resistive

### POWER

-20 volts @ 20 ma  
+20 volts @ 50 ma plus required focus coil current

### OUTPUT

#### COIL CURRENT

Model DF111

100 ma average

Model DF347

1 ampere average

#### SETTLING TIME

(See Note 1)

#### OPERATING TEMPERATURE

-25°C to +60°C

### ADJUSTMENTS

#### DC OFFSET

Screwdriver adjustable potentiometer available at rear of module to compensate for DC level of input signal

#### GAIN

Screwdriver adjustable potentiometer flat mounted on board for overall gain adjust

### PHYSICAL

#### CONNECTOR

Plug  
Receptacle

Elco 00-7022-023-000-001  
Elco 00-7008-023-163-001  
(supplied with unit)

#### DIMENSIONS

6 3/4" L x 5" W

#### MINIMUM SPACING BETWEEN CONNECTORS

Model DF111  
Model DF347

.700 inches  
1.500 inches

#### WEIGHT

8 ounces

### MATERIALS

Semiconductors  
Resistors  
Printed circuit card

silicon  
metal film  
G-10 glass epoxy

#### Note 1:

$$T \text{ (usec)} = \frac{L \text{ (uh)} \times I \text{ (amps)}}{18 \text{ Volts} - IR \text{ (Volts)}}$$

Where: T = Settling time to within 1% of maximum current  
L = Dynamic Focus Coil Inductance  
I = Current through Coil  
R = Coil Resistance

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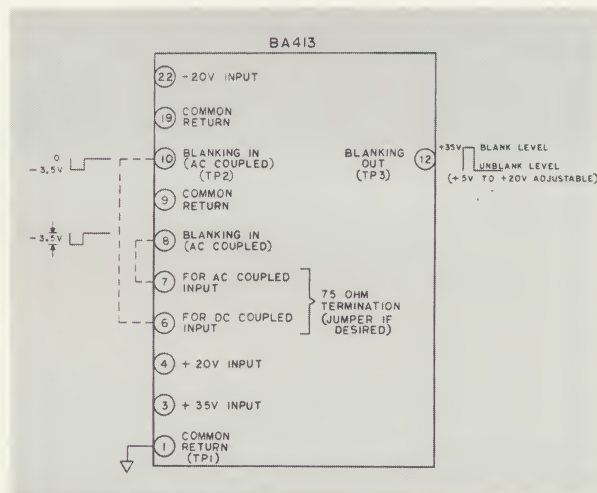
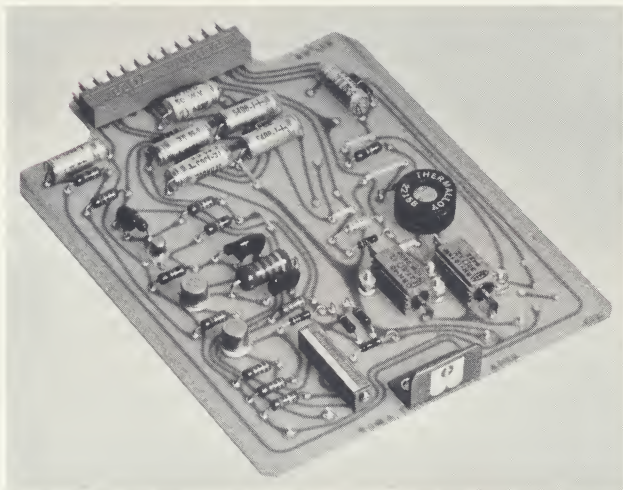




## Engineering Data

### BLANKING AMPLIFIER

Model BA413



#### DESCRIPTION:

The Model BA413 Blanking Amplifier is an all silicon solid-state unit featuring plug-in convenience and low cost. It is designed for application in cathode ray tube or storage tube display systems, and is used for beam blanking during the retrace period of a raster scan or for beam unblanking in a random access point plotting display.

The Model BA413 Blanking Amplifier accepts external blanking signals and applies an amplified blanking signal to the cathode of a CRT or storage tube. The amplifier is DC coupled and features fast rise time. In the event that the input blanking signal is not conveniently available at the dc level specified, an ac coupled input is provided.

A screwdriver-adjustable potentiometer varies the unblank level, and can be used as a brightness or intensity control if desired.

The Model BA413 Blanking Amplifier is fully compatible with all other modular display system components manufactured by Beta.

# Beta Instrument Corporation

## SPECIFICATIONS:

### INPUTS

#### BLANKING

Amplitude  
Impedance

3.5 volts negative  
1K minimum

#### POWER

+35 volts @35 ma  
+20 volts @35 ma  
-20 volts @ 3 ma

### OUTPUT

#### BLANKING SIGNAL

Amplitude  
Rise Time  
Fall Time

35 volts maximum  
0.1 microseconds  
0.15 microseconds

### ADJUSTMENT

#### UNBLANK LEVEL

+5 to +20 volts

#### TEMPERATURE RANGE

-25°C to +60°C

### PHYSICAL

#### CONNECTOR

Plug  
Receptacle

Elco 00-7022-023-000-001  
Elco 00-7008-023-163-001  
(Supplied with unit)  
.700 inches

Minimum spacing between connectors

#### DIMENSIONS

6 3/4" L x 5" W

#### WEIGHT

6 ounces

#### MATERIALS

Semiconductors  
Resistors  
Printed circuit card

silicon  
metal film  
G-10 glass epoxy

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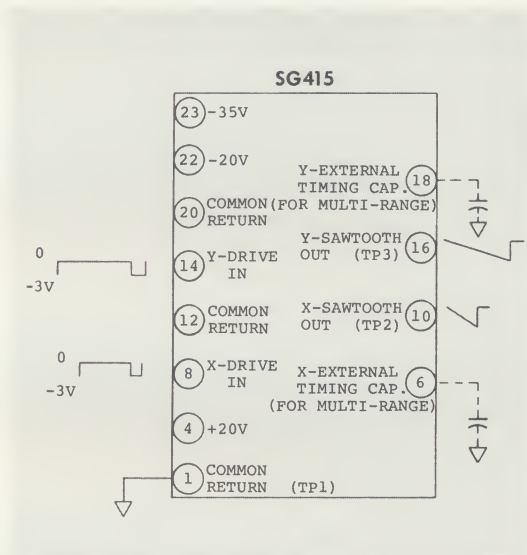
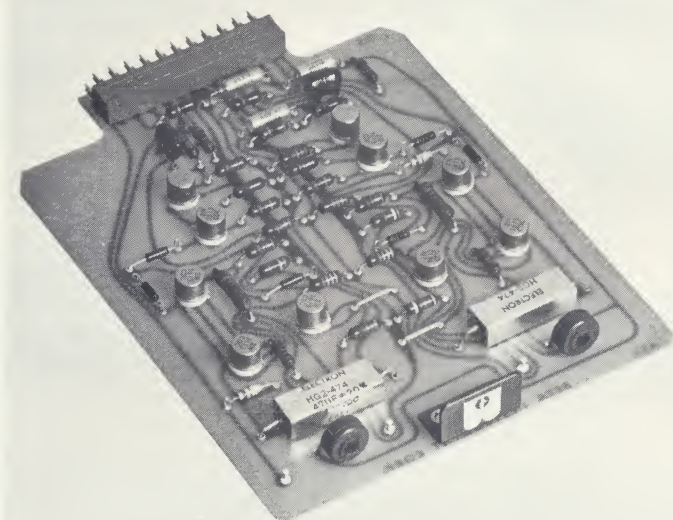




Engineering Data

X-Y SAWTOOTH GENERATOR

Model SG415



DESCRIPTION:

The Model SG415 X-Y Sawtooth Generator is an all silicon solid state unit featuring plug-in convenience and low cost. It is designed for application in any cathode ray tube or storage tube deflection or scanning system where a linear sweep signal is desired.

The Model SG415 comprises two highly stable and linear gated sawtooth generators. Each are dc coupled throughout and offer exceptional slope and position stability despite temperature variations. Screwdriver adjustable potentiometers available at the rear of the module provide for a  $\pm 50\%$  sawtooth width adjustment. The nominal sawtooth widths must be specified, as desired, anywhere within the specified range.

Connector pins internally connected to COMMON RETURN are located near each drive pulse input in the event that shielded input wires are used.

Provisions are made for the connection of external timing capacitors. This allows each channel of the SG415 to be used at any number of sawtooth rates simply by connection to a selector switch containing the timing capacitors.

The outputs of the Model SG415 X-Y Sawtooth Generator are designed to be compatibly coupled to the inputs of any of the deflection amplifiers manufactured by Beta. These amplifiers are chosen according to the total deflection current required. The unit is also fully compatible with all other modular display systems components manufactured by Beta.

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## SPECIFICATIONS:

### INPUTS

#### X AND Y DRIVE

Sawtooth Resting  
Sawtooth Ramping  
Impedance

3 to 5 volts negative  
 $0 \pm 0.5$  volts  
75 ohm or high impedance bridged.

#### POWER

+20 volts @ 60 ma  
-20 volts @ 20 ma  
-35 volts @ 20 ma

### OUTPUTS

#### X AND Y SAWTOOTH

Amplitude  
Impedance  
Width

10 volts negative  
500 ohms maximum  
6 microseconds to 500 milliseconds.  
(Fixed at nominal sawtooth as desired).

### ADJUSTMENTS

#### X AND Y SAWTOOTH WIDTH

$\pm 50\%$

#### NONLINEARITY

$\pm 0.1\%$  maximum

#### FLYBACK TIME

3 microseconds minimum

#### OPERATING TEMPERATURE

$-25^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$

### PHYSICAL

#### CONNECTOR

Plug  
Receptacle

Elco 00-7022-023-000-001  
Elco 00-7008-023-163-001  
(Supplied with unit)  
.700 inches

Minimum spacing between connectors

#### DIMENSIONS

6 3/4 L x 5 W

#### WEIGHT

6 ounces

#### MATERIALS

Semiconductors  
Resistors  
Printed circuit card  
Timing Capacitor

silicon  
metal film  
G-10 glass epoxy  
Silvered mica or polystyrene depending  
upon specified sawtooth width.

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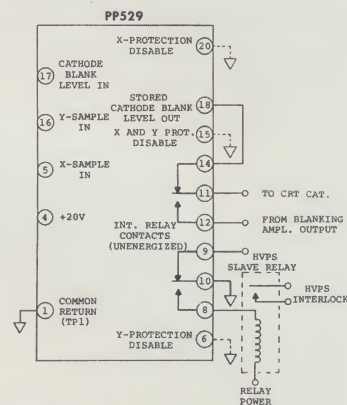
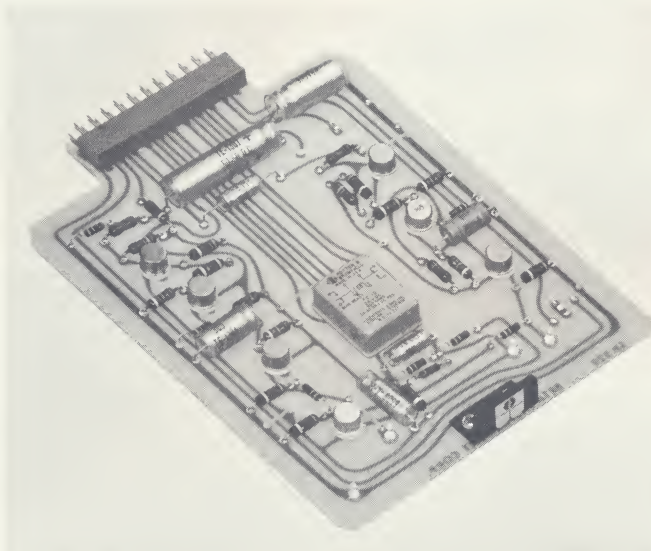




## Engineering Data

### PHOSPHOR PROTECTION CIRCUIT

Model PP529



#### NOTES:

DURING NORMAL SYSTEM OPERATION, THE RELAY IS ENERGIZED. THE UNENERGIZED STATE EXISTS ONLY DURING ACTUAL PROTECTION CONDITIONS OR EQUIPMENT SHUTDOWN.

TP2 IS Y PROTECT SIGNAL OUTPUT  
TP3 IS X + Y PROTECT SIGNAL OUTPUT  
TP4 IS X PROTECT SIGNAL OUTPUT

#### DESCRIPTION:

The Model PP529 Phosphor Protection Circuit is an all silicon solid state unit featuring plug-in convenience and low cost. It is designed for application in any periodically scanned cathode ray tube or storage tube display system where phosphor or screen protection is desired.

The Model PP529 samples both X and Y deflection coil current sawtooth signals to assure that the electron beam is in motion. In the event of a failure in either deflection amplifier channel, or in the event that X and Y drive pulses are lost, the Phosphor Protection Circuit relay deenergizes. The six contacts of the two relay transfer pairs are brought out to connector pins on the card. It is recommended that one transfer pair be utilized to actuate a slave relay controlling the high voltage power supply. The remaining transfer pair can be connected to provide an additional safety feature--the application of a blanking level to the CRT. The blanking level is obtained from an energy storage capacitor on the module so that protection is complete even if all dc power is lost and the high voltage power supply possesses a long decay time.

The inputs of the Model PP529 Phosphor Protection Circuit are designed to be compatibly coupled to the current sample outputs of all Beta Deflection Amplifiers. The Phosphor Protection Circuit is also fully compatible with all other modular display systems components manufactured by Beta.

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## SPECIFICATIONS:

### INPUTS

#### X-DEFLECTION CURRENT SAMPLE

Amplitude	±3 volts
Impedance	2.5K minimum, ac coupled

#### Y-DEFLECTION CURRENT SAMPLE

Amplitude	±3 volts
Impedance	2.5K minimum, ac coupled

#### CATHODE BLANK LEVEL

Amplitude	as required (75 volts maximum)
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### POWER

+20V @ 30 ma

### OUTPUTS

#### RELAY CONTACTS PROTECTION DISABLE

DPDT

X	connect to
Y	common return
X and Y	to disable

#### STORED CATHODE BLANK LEVEL

Amplitude	see INPUTS
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### ADJUSTMENTS

#### PROTECTION SPEED

Factory set to customer's scan rates

#### OPERATING TEMPERATURE

-25°C to +60°C

### PHYSICAL

#### CONNECTOR

Plug	Elco 00-7022-023-000-001
Receptacle	Elco 00-7008-023-163-001 (Supplied with Unit)

#### DIMENSIONS (OVERALL) RECEPTACLE SPACING

6 3/4 L x 5 W  
.700 inches minimum

#### WEIGHT

6 ounces

#### MATERIALS

Semiconductors	silicon
Resistors	metal film
Printed circuit card	G-10 glass epoxy

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Advanced Engineering Data  
ELECTROSTATIC DEFLECTION AMPLIFIER

Model EDA800

Description:

The Model EDA800 is an all solid state differential feedback amplifier for use with electrostatic deflection cathode ray tubes or cathode ray tubes utilizing electromagnetic primary deflection and electrostatic character writing.

Specifications:

Gain	32
Maximum Output	350 volts, peak to peak
Rise and Fall Time (10%-90%)	Less than 2 usec for full output
Input Impedance	100 ohms
Controls	Gain, balance
Power Supplies	+20 volts @ 30 ma -20 volts @ 20 ma +350 volts @ 30 ma -150 volts @ 35 ma
Dimensions	6 3/4" L x 5" W
Connector	
Plug	Elco 00-7022-023-000-001
Receptacle	Elco 00-7008-023-163-001 (Supplied with unit)
Receptacle Spacing	1.400 inches minimum
Materials	
Semiconductors	silicon
Resistors	metal film
Printed circuit card	G-10 glass epoxy

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## Advanced Engineering Data

### VIDEO AMPLIFIER

Model VA548

#### Specifications:

##### Inputs

###### Signal

Amplitude

1.7 volts maximum

Impedance

92 ohms or 1K ohm

Polarity

positive

DC Restorer Level

$\pm 100$  volts

Power

+20 volts @ 170 ma

-20 volts @ 60 ma

-35 volts @ 100 ma

##### DC Output

Amplitude

40 volts maximum

Impedance

390 ohms

Polarity

positive

Bandwidth (-3 db points)

DC to 10 mc (into 33 pf)

Output Level

-33 volts for 0 volts in

##### AC Output

Amplitude

40 volts maximum

Impedance

390 ohms

Polarity

positive from DC restorer level

Bandwidth (-3 db points)

50 cps to 10 mc (into 33pf//1 meg)

Gain

27 db

Output Noise

50 mvp-p maximum

Dynamic Range

58 db

DC Restoration

diode

Arc Protection

Amplifier is protected from damage by arcs or breakdown internal to CRT.

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## Physical

### Connector

Plug

Receptacle

Elco 00-7022-023-000-001

Elco 00-7008-023-163-001

(Supplied with unit)

### Dimensions

Minimum spacing between connectors

6 3/4" L x 5" H

.700 inches

### Weight

4 ounces

### Materials

Semiconductors

Resistors

Printed circuit card

silicon

metal film

G-10 glass epoxy



## Advanced Engineering Data

### VIDEO AMPLIFIER

Model VA598

#### Specifications:

##### Inputs

Signal	
Amplitude	1.3 volts maximum
Impedance	92 ohms
Polarity	positive

DC Restorer Level	$\pm 100$ volts
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Power	+20 volts @ 150 ma
	-20 volts @ 150 ma

##### DC Output

Amplitude	30 volts maximum
Impedance	390 ohms
Polarity	positive
Bandwidth (-3 db points)	DC to 30 mc (into 33 mmf)
Output Level	-18 volts for 0 volts in

##### AC Output

Amplitude	30 volts maximum
Impedance	390 ohms
Polarity	positive from DC restorer level
Bandwidth (-3 db points)	50 cps to 30 mc (into 33pf//1 meg)

Gain	27 db
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Contrast Ratio	400:1
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DC Restoration	diode
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Size (encased unit)	7"1 x 5"h x 2 3/4"w (maximum outside dimensions)
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##### Connectors

Signal	
Input	BNC
Output	BNC

Power	Feed-thru terminals
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## MANUFACTURERS REPRESENTATIVES

### Representatives

### Area

Edwin B. Hinck  
Edwin B. Hinck Sales Company  
139 Union Street  
Montclair, New Jersey 07042  
Tel: 201/746-2625

Northern New York State excluding  
Westchester and Rockland Counties

William J. McGrail  
New England Technical Sales Corp.  
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Auburndale, Mass.  
Tel: 617/527-3473

Massachusetts, Maine, Vermont,  
New Hampshire, Connecticut, and  
Rhode Island

John C. Wolke  
John C. Wolke Sales Assoc.  
139 Union Street  
Montclair, New Jersey 07042  
Tel: 201/746-2625

Delaware, Maryland, Virginia,  
Eastern Pennsylvania, District  
of Columbia, and Southern New  
Jersey

Budd Posner  
Budd-Tronics, Inc.  
139 Greenwich Street  
Bergenfield, New Jersey 07621  
Tel: 201/385-5295

Metropolitan New York including  
Long Island and Northern New  
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Texas

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## PRODUCT PRICE LIST

February 1, 1966

<u>MODEL NO.</u>	<u>OLD MODEL NO.</u>	<u>TITLE</u>	<u>PRICE</u>
<u>CRT System Circuit Modules</u>			
SG415		X-Y Sawtooth Generator	\$ 235.00
DA341		Deflection Amplifier ( $\pm 200$ ma)	190.00
DA103		X-Y Deflection Amplifier ( $\pm 1.5$ a)	740.00
DA104		X-Y Deflection Amplifier ( $\pm 3.0$ a)	980.00
DA105		X-Y Deflection Amplifier ( $\pm 6.0$ a)	1,555.00
DF345		Dynamic Focus Generator	202.00
DF111		Dynamic Focus Output Amplifier (300 ma)	128.00
DF347		Dynamic Focus Output Amplifier (2.5 a)	194.00
BA/FR413	(BA120 and FR115)	Blanking Amplifier and Static Focus Regulator	144.00
FR413	(FR115)	Static Focus Regulator	100.00
BA413	(BA120)	Blanking Amplifier	125.00
CR475		Centering Coil Regulator	128.00
PP529		Phosphor Protection Circuit	146.00
VA470		Video Amplifier	480.00
VA548		Video Amplifier	269.00
VA598		Video Amplifier	575.00
LC700		Linearity Correction Circuit (on-axis)	230.00
LC650/700		Linearity Correction Circuit (on and off-axis)	388.00
<u>Tube and Coil Mounts</u>			
CRTM		Basic CRT Mount	\$ 218.00
DSTM		Basic Dual Gun Recording Storage Tube Mount	232.00
MCM		Micropositioning Coil Mount	357.00
FYM		Fixed Yoke Mount	103.00
CCM		Centering and Alignment Coil Mount	68.00
<u>Accessories</u>			
CRA759		Card Rack Assembly	\$ 195.00
XC468		Extender Card	40.00

- NOTES: 1. Prices listed herein supercede all previously published prices for these items.  
2. Prices subject to change without notice.  
3. Prices: FOB, Newton, Mass. Terms: Net 30 days.  
4. We will be pleased to quote quantity prices for any item shown on this list.

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